

Testimony of  
Georges C. Benjamin, M.D., F.A.C.P.

Secretary, Maryland Department of Health and Mental Hygiene  
Baltimore, Maryland

Testimony Before  
The Committee on Commerce, Science and Transportation  
United States Senate

Hearing on Fighting Bioterrorism: Using America's Scientists and Entrepreneurs to  
Find Solutions

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Good morning Mr. Chairman and Members of the Committee. I want to thank you for inviting me to speak to you today about the needs of the public health system and how we can improve our response to a bioterrorism attack. I am here today in my role as President of the Association of State and Territorial Health Officials (ASTHO). ASTHO is the national organization that represents public health agencies and the chief health officials in the country, the District of Columbia and the U.S. Territories. We are dedicated to formulating sound national public health policies and to assuring excellence in state-based public health practices.

For the past five months, the clarion call of health officials has been the need to improve the public health infrastructure. Today, I want to talk with you about the role that America's entrepreneurs, scientists and expert clinicians can play in enhancing the public health infrastructure to protect our nation.

On October 2nd a 63 year old, male presented to a Florida emergency department with fever and confusion. During the evaluation he was found to have a widened mediastinum and gram positive bacilli in his cerebral spinal fluid. Further testing revealed he had "inhalation anthrax". He died three days later.

This was the index case of an outbreak of anthrax caused by bioterrorism. At its conclusion, eighteen people became ill and thousands were potentially exposed. Eventually, eleven cases of inhalation anthrax and seven cases of cutaneous anthrax were diagnosed. There were five deaths from inhalation anthrax. Over 33,000 people in several areas of the country required prophylactic antibiotics and a small subset elected to receive the anthrax vaccine as part of an investigational protocol for additional protection. Epidemiological and criminal legal investigations identified several letters filled with "weaponized" anthrax spores as the vectors of this attack.

Prior to this attack the nation had experienced several anthrax hoaxes delivered through the mail. Many of these threats contained powdery substances, which were not infectious or toxic. Based upon this experience and the limited clinical understanding of the pathophysiology of anthrax, bioterrorism planners reached several conclusions that subsequently proved to be incorrect. Some of these beliefs included:

- Anthrax was easy to grow but hard to weaponize. This placed the emphasis on state-sponsored terrorism that then became the focus of our training and preparations. State sponsored was frequently interpreted as large-scale aerosolization.
- A letter had to be opened in order to expose people.
- Weaponized anthrax would stay put and exposure would be a local event. Therefore re-aerosolization probably would not occur.
- Cross contamination would not be a significant problem.
- Inhalation anthrax is 90% fatal.

These beliefs were challenged in our real world scenario and found to be untrue. In addition, the speed at which new knowledge was produced during this event was unparalleled and was utilized so quickly that keeping current was a major endeavor. This created a “science of the day” environment which was often confusing and suspect.

I believe there is an important lesson that we must utilize in order to develop and enhance our capacity to rapidly access, exchange and disseminate new knowledge and information. These capacities fall into the following three areas: learning new information; building linkages to scientific experts; and the ability to identify and validate new or existing technologies,

During the Anthrax investigations in October, state public health laboratories throughout the nation tested thousands of samples of suspicious powder every day. In Maryland, for example, we tested over 2,000 powders, nasal swabs and clinical specimens. Our scientists were performing these tests for the first time. We also learned how to properly perform environmental testing. For example, we learned that cotton swabs are not as reliable as nylon swabs in detecting Anthrax spores.

Over the course of three weeks, the Maryland Department of Health and Mental Hygiene investigated eighty-five (85) suspected cases of Anthrax, including two deaths; tested thirty (30) private mailrooms for spores and opened clinics across the state to distribute antibiotics to individuals who were potentially exposed. At the conclusion of the event we had supplied Ciprofloxacin or Doxycycline to over three thousand (3,000) individuals as initial prophylaxis for potential Anthrax exposure. Furthermore, we re-deployed staff from the tuberculosis program, the AIDS administration and the immunization clinics to handle more than one hundred (100) telephone calls a day to help with the surveillance investigation. The knowledge curve was steep and our resources were stretched to the limit. We shared this knowledge, as did others, with our public health partners across the country through a series of daily conference calls, e-mails and faxes.

While some medical personnel in the Midwest and the Southwest are familiar with cutaneous Anthrax, very few physicians and medical practitioners in the

Eastern United States have ever seen it. The clinical symptoms of the other potential bioterrorist threat agents such as smallpox, plague and tularemia are also unknown to many of today's practicing physicians. If we are to be successful we need access to the clinicians and scientists who have actually seen these diseases. It is not just a matter of early recognition but we need their clinical "pearls-of-wisdom" about the treatment and management of these diseases. Hands-on experience is an essential key to making truly informed public health decisions. The modern technology at our disposal today makes it easier to access the knowledge, skills and information experts possess.

The medical community responded during the Anthrax attacks with a thirst for new information. The public health system tried to quench that thirst by increasing our understanding of the diagnostic and therapeutic options and letting practitioners know where to call for administrative or clinical help. The goal was to raise the clinical index of suspicion across the nation.

New systems are needed for the rapid dissemination of this knowledge to the practicing healthcare community. Systems under development include rapid fax, e-mail and beeper systems. Teleconferencing and videoconferencing were frequently utilized to share important information on both anthrax and smallpox, but we need to develop more of these educational services for the full range of biological threat agents (36 in all). Computer education through the Internet can be used in the future as an additional tool.

On September 11<sup>th</sup>, the Federal Centers for Disease Control and Prevention freely shared alerts and protocols with the public health community. For a variety of reasons, however, over time the information slowed to a trickle. The Health Alert Network – our nationwide communications information/training system served as an essential tool in information sharing and even helped us clarify the appropriate role of the rapid screens used for environmental testing. This is an important example because at the height of the Anthrax investigations, health department officials were being inundated with calls, e-mails, faxes and packages from vendors trying to sell "quick-detection-devices".

During the investigation, new linkages and relationships between a broad range of non-medical professionals such as environmentalist, disaster preparedness experts, fire and law enforcement officials and the medical professionals including emergency medical services personnel, occupational safety officials and "bioweaponers" occurred. It is essential that these linkages are developed before a bioterrorist event occurs. Access to a core group of specialists in every state can be achieved by surveying the practicing community. There are a number of practitioners, scientists and researchers who have seen these threat agents in clinical settings. They should be identified now and asked to provide their expertise when an event occurs. In states like New York, New Jersey, Virginia and Maryland the medical and public health organizations are compiling databases of

names, telephone numbers and e-mail addresses of experts for future reference.

Access to cutting edge research is also important. This past summer, researchers in Canada performed an experiment to demonstrate the impact of opening an envelope filled with a biological agent in a sealed room. The results of this study served as an important tool in our understanding of how anthrax spores contaminate an enclosed space. The knowledge gleaned from this study was also important in the debate surrounding post-exposure vaccination.

The need for new knowledge is not limited to the realm of bioterrorism. In the summer of 1997 in Maryland the public health community was challenged when fish with lesions began showing up in waters on Maryland's Eastern Shore. The need for information concerning a new and deadly fish disease became apparent immediately. In August of that year we not only faced the dilemma of fifty-thousand (50,000) dead and dying fish but we had to address the concerns of the watermen and fishermen who worked on those rivers. They were complaining about strange and unusual medical symptoms that defied explanation and were coupled with the belief that these symptoms were somehow related to the sick fish. We found ourselves in the midst of something completely new – *Pfiesteria piscicida*.

One of the most significant lessons learned during that time was how little information was known or available about the disease that up to that time had only been seen by a handful of people in North Carolina. The information was so scarce that the disease did not even have an official name. While we utilized our standard disease surveillance protocols to investigate and track reports of illness, our pool of information resources was limited to a small cadre of fish researchers in Florida and North Carolina who were not experts in human health. We discovered just how little information was available about *Pfiesteria*.

As we started our quest to identify if these watermen could have a medical condition, it became clear we would have to find an expert in dinoflagellates, the family of organisms that includes *Pfiesteria*. These organisms were poorly understood or unknown by most public health or medical professionals. Like most public health agencies, we utilize the U.S. Centers for Disease Control and Prevention for expert advice. In most cases you simply pick up the telephone to talk to a disease expert. In this case we called and no expert was on staff who could answer our questions. They did refer us an expert who had previously worked for the CDC. He is currently the Chairman of the Department of Epidemiology and Preventive Medicine at the University of Maryland School of Medicine. He put a team together and was able to find another expert on the other side of town at the Johns Hopkins School of Public Health. In essence, the expertise we needed was in our own backyard and we did not know it.

Related to the issue of accessibility of resources is assuring that the information, expert advice or technology is accurate and reliable. Every day I

receive packets of brochures from companies, experts, inventors and vendors who want to demonstrate their products. They range from environmental testing equipment, gas masks and biohazard suits to gadgets that allegedly detect bioagents in the air. We must know if these products are legitimate and we must be able to verify that equipment is appropriate for use in the healthcare setting.

In closing, I want to emphasize how well the public health system responded to the events of September 11<sup>th</sup> and the anthrax bioterrorism attacks. Our current system was stretched to the limit but we were able to mobilize quickly to address these public health threats. But these events were an eye-opener. We have discovered how much more we need to do to be effective and successful. We must increase the pools of resources so that credible information, reliable equipment and knowledgeable experts are available at a moment's notice.

Thank you again for giving me this opportunity to speak to you today.